REMARKS

Claims 1-27, 40, 41, 58-60, 70, 71, 78-84, 86-88, 90-95, and 109-115 are allowed. Claims 69, 85, 98, and 116-121 are rejected on new matter grounds. The Examiner has made the rejections final.

Applicants hereby amend claims 69 and 98 to change the objected-to "bromide or chloride or their combination" to the suggested "alkyl triethylammonium chloride or bromide surfactants with different chain lengths. As the Examiner points out, such is supported in the original specification at column 7, lines 45-52. Also as suggested, applicants hereby amend claim 85 to add the limitation "acid" to the recited catalyst. Finally, applicants hereby amend claims 116-121 as suggested to omit the objected-to "an improved" language from the preamble and to be limited to "aqueous" solvents, also as suggested by the Examiner. Applicants submit that all rejected claims are unobjectionable and allowable for the following reasons.

Rejected claims 69, 85 and 98 are allowable because they, as amended hereby, are supported by the original specification, definite, useful, novel and non-obvious, as indicated by the Examiner in the most recent Office action. Rejected claims 116-121, as amended hereby, are definite, useful, novel and non-obvious, as indicated by the Examiner in the latest Office action. The Examiner's position is that these claims represent new matter because they omit "catalyst" and/or "surfactant", or a particular species of catalyst and/or surfactant, which the Examiner believes are "required" and/or "critical" and/or "mandatory" components in their claimed method. Applicants respectfully but most strongly traverse the rejections.

Claims 116-121 are in so-called Jepson format, represented by a preamble that recites non-critical, admittedly prior art, chemical components and method steps for forming templated mesoporous material from a precursor solution. The claimed improvement over the prior art then recites the novel steps that distinguish applicants' invention over the prior art. The inventive steps thereof do not mention a catalyst or a surfactant. This is because the Jepson preamble relates the known prior art, which involved templated solutions with various surfactants and catalysts known to those of skill in the art and cited in the background of the invention.

But not part of your original disclosure though

While applicants' "preferred" catalyst is indeed acidic, *base catalysts were well known in this type of chemistry prior to applicants' filing of the original Bruinsma patent application. This is also cited in the background of the invention.* A "base catalyst", for example, is described in the cited Kresge, et al. article. (See specification, column 2, first full paragraph). The Kresge article is also included as Appendix D, at tab 2, of applicants' amendment dated November 13, 2000. Note that the inventive steps recited in Jepson-formatted claims 116-121 do not mention a catalyst. Thus, it is submitted that the type of catalyst is not "required" or "critical" or "mandatory" to the practice of applicants' invented improvement.

Similarly, while the "preferred" surfactant is indeed cationic, anionic surfactants were well known in this type of chemistry prior to applicants' filing of the original Bruinsma patent application *and neutral surfactants were cited in the background of the invention.* A known neutral surfactant is cited also in the background of U.S. Patent No. 5,858,457 to Brinker at column 2, lines 24-41. See also the Tanev reference of record (cited by applicants at the paragraph spanning columns 1 and 2 of the original Bruinsma patent application) in which, at page 1267, in the full paragraph in the second column thereof, a neutral surfactant is used. *Again, claims 116-121 are Jepson claims, and the inventive steps thereof do not mention a surfactant.* Thus, it is submitted that the type of surfactant also is not "required" or "critical" or "mandatory" to the practice of applicants' invented improvement.

But yours makes the use of a surfactant & catalyst critical!!

The predecessor appeals courts to the present Board of Patent Appeals and Interferences has spoken clearly and forcefully on this legal question. A precise definition of materials is not needed when the essence of the invention does not reside in the use of those materials in the claimed process. See, for example, *Ex parte McAllister et al.*, 92 USPQ 373 (BOPA 1950) and *Ex parte Calingaert et al.*, 52 USPQ 263 (BOPA 1941).

But you make it a requirement in your disclosure though?!

In those cases, the Examiner's final rejection of claims on the grounds of omitted essential matter was *reversed.*

See also *Johnson Worldwide Associates Inc. v. Zebco Corp.*, 50 USPQ2d 1607 at 1613 (CAFC 1999)(application having "heading" term therein with varying meaning, which does not "unambiguously limit" term to only one such meaning, can claim broader meaning); *Ex parte* Parks, 30 USPQ2d 1234 at 1236 (BPAI 1993)(lack of literal support in

reissue application for "in the absence of a catalyst" limitation does not establish *prima* facie case for lack of adequate descriptive support); In *re Peters and Anderson*, 221 USPQ 952 at 953 (CAFC 1983) ("[t]he broadened [reissue] claims merely omit an unnecessary limitation that had restricted one element of the invention to the exact and noncritical shape disclosed in the original patent. In sum, nothing in the original disclosure indicates or suggests that the tapered shape of the tips was essential or critical to either the operation or patentability of the invention. Indeed, if the reissue claims had been submitted with the original application, it is difficult to perceive how they could have been properly rejected under §112."); and *In re Rasmussen*, 211 USPQ 323 (CCPA 1981)(broadening reissue claim to "adheringly applying" permitted despite specific embodiment that employed adhesives that was disclosed in original specification).

In all reissue cases (the first of this string of cases was an infringement case), the Examiner in the case was *reversed*.

Accordingly, applicants request careful reconsideration by the Examiner of his position in rejecting applicants' Jepson-format claims 116-121, and issuance forthwith of a Notice of Allowance of all pending claims. Applicants also request entering of the above amendments to claims after final rejection on the grounds that the changes put the claims in condition for allowance, and that changes put the claims in better condition for appeal to the Board of Patent Appeals and Interferences, in the event that such claims are not allowed..

Please telephone applicants' undersigned counsel if such would advance allowance of claims of their reissue application.

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CONCLUSION

Accordingly, a favorable action allowing applicants' amended claims is respectfully requested. Applicants' undersigned patent counsel requests a courtesy phone call from the Examiner upon reconsideration and prior to issuance of another Office action or Notice of Allowance.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims

69. (Thrice Amended) The process of claim 58, wherein the ammonium cationic surfactant further includes [bromide or chloride or their combination] alkyl triethylammonium chloride or bromide surfactants with different chain lengths.

ok

85. (Amended) A process to form a mesostructure, comprising:

(a) preparing a precursor sol containing a soluble source of silica, water and alcohol solvent, an ammonium cationic surfactant and an acid catalyst; and

ok

(b) evaporating said solvent in less than 5 minutes to cause the formation of a mesostructure, wherein said mesostructure contains surfactant.

98. (Amended) The process of claim 91, wherein the ammonium cationic surfactant further includes [bromide or chloride or their combination] alkyl triethylammonium chloride or bromide surfactants with different chain lengths.

ok

116. (Amended) A[n improved] method of forming templated mesoporous material on a substrate from a silica precursor solution containing an alkoxide silica precursor, and ammonium cationic surfactant and a solvent, while avoiding gelation, precipitation and non-porous or lamellar structures, wherein the improvement comprises the steps of:

no acid catalyst

(a) preparing said silica precursor solution using an aqueous solvent;

(b) dispensing a layer of said precursor solution on said substrate;

(c) thinning said layer by spin casting; and

(d) forming templated mesoporous material on said substrate by evaporation of the solvent in less than 5 minutes.

117. (Amended) A[n improved] method of forming templated mesoporous material from a silica precursor solution containing an alkoxide silica precursor, an ammonium cationic surfactant and a solvent, while avoiding gelation or precipitation or non-porous or lamellar structures, wherein the improvement comprises the steps of:

(a) preparing said silica precursor solution using an aqueous solvent;

(b) spin casting, drawing, spraying or squeegeeing said silica precursor solution; and

(c) evaporating the solvent in less than 5 minutes to form templated mesoporous material.

118. (Amended) A[n improved] method of forming templated mesoporous material on a substrate from a silica precursor solution containing an alkoxide silica precursor, an amount of surfactant great enough to avoid a non-porous film but not enough to produce a lamellar structure, and a solvent, while avoiding gelation or precipitation, wherein the improvement comprises the steps of:

(a) preparing said silica precursor solution using an aqueous solvent;

(b) dispensing a layer of said precursor solution on said substrate;

(c) thinning said layer by spin casting; and

(d) forming templated mesoporous material on said substrate by evaporation of the solvent in less than 5 minutes.

119. (Amended) A[n improved] method of forming templated mesoporous material from a silica precursor solution containing an alkoxide silica precursor, a surfactant and a solvent, while avoiding gelation or precipitation and non-porous or lamellar structures, wherein the improvement comprises the steps of:

(a) preparing said silica precursor solution using an aqueous solvent;

(b) spin casting, drawing, spraying or squeegeeing said silica precursor solution; and

(c) evaporating the solvent in less than 5 minutes to form templated mesoporous material.

120. (Amended) A[n improved] method of forming templated mesoporous material on a substrate from a silica precursor solution containing an alkoxide silica precursor, and a solvent, while avoiding gelation or precipitation an non-porous or lamellar structures, wherein the improvement comprises the steps of:

- no surfactant (specific)
- no acid catalyst

(a) preparing said silica precursor solution using an aqueous solvent;

(b) dispensing a layer of said precursor solution on said substrate;

(c) thinning said layer by spin casting; and

(d) forming templated mesoporous material on said substrate by evaporation of the solvent in less than 5 minutes.

121. (Amended) A[n improved] method of forming templated mesoporous material from a silica precursor solution containing an alkoxide silica precursor, and a solvent, while avoiding gelation or precipitation and non-porous or lemallar structures, wherein the improvement comprises the steps of:

- no surfactant (specific mes)
- no acid catalyst

(a) preparing said silica precursor solution using an aqueous solvent;

(b) spin casting, drawing, spraying or squeegeeing said silica precursor solution; and

(c) evaporating the solvent in less than 5 minutes to form templated mesoporous material.